DISSERTATION ABSTRACT

TITLE OF THE ABSTRACT: A pilot study on molecular typing and seroepidemiology of Human enteroviruses (HEV) in aseptic meningitis and some other common clinically associated diseases.

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OBJECTIVES:

1. To compare two real time RT-PCRs amplifying the 5‘UTR region
2. To standardize a conventional PCR targeting VP1-2C region of enterovirus for molecular typing
3. To estimate the IgM seroprevalence of coxsackievirus

METHODS:

In this observational study, A total of 81 samples were collected from patients with HFMD (vesicular swab=31), aseptic meningitis (CSF=26), myocarditis (plasma =18, pericardial fluid=2) and AHC (conjunctival swab=4) for PCR and 42 serum samples for serology. Two screening real-time PCRs were done on all 81 samples targeting the 5’UTR region. A conventional PCR targeting the VP1-2C region was done on samples that amplified by real time PCR followed by sequencing and molecular typing. Human coxsackievirus IgM ELISA was done with serum samples from 42 patients and 30 age stratified controls and compared.

Descriptive statistics (mean and SD or median and inter quartile range) was used for continuous variables. Intra class correlation was used to compare two real-time PCRs.

RESULTS:

Among the 81 samples, 25 (30.86%) samples had a Ct value of <30 and 12/25 (48%) got amplified in conventional PCR. Among the 12 samples 9 were coxsackievirus A6 and 3 were coxsackievirus A16. The median of the OD values of both the HFMD patients (p=0.002) and the myocarditis patients (p=0.013) were significantly higher than that of the controls.

Coxsackievirus A6 is the prevalent molecular type causing HFMD in Vellore district. The low sensitivity of the conventional PCR might be due to the low viral load in clinical samples. Serology can be used as confirmatory test for diagnosis of clinical infections highly suggestive of coxsackievirus as the cause.

Key words: Human enterovirus, coxsackievirus, PCR